



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2011-1068; Directorate Identifier 2010-NM-189-AD; Amendment 39-18647; AD 2016-18-16]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes. This AD was prompted by fuel system reviews conducted by the manufacturer. This AD requires installing an automatic shutoff system for the center and auxiliary tank fuel boost pumps, as applicable; installing a placard in the airplane flight deck if necessary; replacing the P5-2 fuel system module assembly; installing the “uncommanded ON” (UCO) protection system for the fuel boost pumps; revising the airplane flight manual (AFM) to advise the flight crew of certain operating restrictions for airplanes equipped with an automatic shutoff system; and revising the maintenance program by incorporating new airworthiness limitations for fuel tank systems to satisfy Special Federal Aviation Regulation No. 88 requirements. We are issuing this AD to prevent operation of the center and auxiliary tank fuel boost pumps with continuous low pressure, which could lead to friction sparks or overheating in the fuel pump inlet that could create a potential ignition source inside the center and auxiliary fuel tanks. These conditions, in

combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For Boeing service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone: 206-544-5000, extension 1; fax: 206-766-5680; Internet <https://www.myboeingfleet.com>. For BAE Systems service information identified in this final rule, contact BAE Systems, Attention: Commercial Product Support, 600 Main Street, Room S18C, Johnson City, NY 13790-1806; phone: 607-770-3084; fax: 607-770-3015; email: CS-Customer.Service@baesystems.com; Internet: <http://www.baesystems-ps.com/customersupport>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2011-1068.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2011-1068; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Docket Management Facility, U.S. Department of Transportation,

Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Serj Harutunian, Aerospace Engineer, Propulsion Branch, ANM-140L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5254; fax: 562-627-5210; email: Serj.Harutunian@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply to all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes. The SNPRM published in the Federal Register on March 28, 2016 (81 FR 17098) (“the SNPRM”). We preceded the SNPRM with a notice of proposed rulemaking (NPRM) that published in the Federal Register on October 12, 2011 (76 FR 63229) (“the NPRM”). The NPRM proposed to require installing an automatic shutoff system for the center and auxiliary tank fuel boost pumps, as applicable; installing a placard in the airplane flight deck if necessary; replacing the P5-2 fuel system module assembly; installing the UCO protection system for the fuel boost pumps; revising the airplane flight manual to advise the flight crew of certain operating restrictions for airplanes equipped with an automatic shutoff system; and revising the maintenance program by incorporating new airworthiness limitations for fuel tank systems to satisfy Special Federal Aviation Regulation No. 88 requirements. The NPRM was prompted by fuel system reviews conducted by the manufacturer. The SNPRM proposed to require updated or additional actions for certain airplane configurations. We are issuing this AD to prevent operation of the center and auxiliary tank fuel boost pumps with continuous low pressure, which could lead to friction sparks or overheating in the fuel pump inlet that could create a potential ignition source inside

the center and auxiliary fuel tanks. These conditions, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the SNPRM and the FAA's response to each comment. Boeing concurred with the SNPRM.

Grouping Clarification for Airplanes with Removed Airstairs

Phillippe Akot Azougo, ASLF, reported on a discussion with Boeing regarding the applicable airplane group for an airplane from which the airstair has been removed. Boeing indicated that if all of the support structure is not removed, the airplane is considered in the group with airstairs. Based on this comment, there is no need to change this final rule regarding this issue.

Effect of Winglets on Accomplishment of the Proposed Actions

Aviation Partners Boeing stated that the installation of winglets per Supplemental Type Certificate (STC) ST01219SE does not affect the accomplishment of the manufacturer's service instructions.

We agree with the commenter that STC ST01219SE does not affect the accomplishment of the manufacturer's service instructions. Therefore, the installation of STC ST01219SE does not affect the ability to accomplish the actions required by this AD. We have not changed this AD in this regard.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD as proposed, except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the SNPRM for correcting the unsafe condition; and

- Do not add any additional burden upon the public than was already proposed in the SNPRM.

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Related Service Information under 1 CFR Part 51

We reviewed the following service information:

The following describe procedures for replacing the P5-2 fuel system module assembly for Model 737-100, -200, -200C, -300, -400, and -500 airplanes.

- Boeing Alert Service Bulletin 737-28A1210, dated August 2, 2010.
- Boeing Service Bulletin 737-28A1210, Revision 1, dated May 13, 2011.
- Boeing Service Bulletin 737-28A1210, Revision 2, dated October 25, 2012.

The following describe procedures for installing an automatic shutoff system for the center and auxiliary fuel tank boost pumps for Model 737-300, -400, and -500 airplanes.

- Boeing Alert Service Bulletin 737-28A1216, dated July 29, 2010.
- Boeing Service Bulletin 737-28A1216, Revision 1, dated March 26, 2012.
- Boeing Service Bulletin 737-28A1216, Revision 2, dated November 12, 2012.
- Boeing Service Bulletin 737-28A1216, Revision 3, dated July 16, 2014.

The following describe procedures for installing a UCO protection system for the center and auxiliary fuel boost pumps for Model 737-100, -200, -200C, -300, -400, and -500 airplanes.

- Boeing Alert Service Bulletin 737-28A1227, dated August 2, 2010.
- Boeing Alert Service Bulletin 737-28A1227, Revision 1, dated July 18, 2011.
- Boeing Service Bulletin 737-28A1227, Revision 2, dated September 23, 2014.

The following describe procedures for installing an automatic shutoff system for the center and auxiliary fuel tank boost pumps for Model 737-100, -200, and -200C airplanes.

- Boeing Alert Service Bulletin 737-28A1228, dated August 2, 2010.
- Boeing Alert Service Bulletin 737-28A1228, Revision 1, dated June 28, 2012.
- Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014, contains, among other requirements, AWLs 28-AWL-21, 28-AWL-22, 28-AWL-24, and 28-AWL-25 for Model 737-100, -200, and -200C airplanes; and AWLs 28-AWL-20, 28-AWL-21, 28-AWL-23, and 28-AWL-24; for Model 737-300, -400, and -500 airplanes. These AWLs provide airworthiness limitation instructions for an operational check of the installed automatic shutoff system.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

We estimate that this AD affects 499 airplanes of U.S. registry. We estimate the following costs to comply with this AD:

Estimated costs				
Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Install auto shutoff protection for Model 737-100, -200, -200 C airplanes (82 airplanes)	Between 92 and 155 work-hours X \$85 per hours = Between \$7,820 and \$13,175 ¹	Between \$10,792 and \$15,548 ¹	Between \$18,612 and \$28,723 ¹	Between \$1,526,184 and \$2,355,286 ¹

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Install auto shutoff protection for Model 737-300, -400, and -500 airplanes (417 airplanes)	Between 92 and 152 work-hours X \$85 per hours = Between \$7,820 and \$12,920 ¹	Between \$9,869 and \$16,236 ¹	Between \$17,689 and \$29,156 ¹	Between \$7,376,313 and \$12,158,052 ¹
Install P5-2 module (499 airplanes)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$42,415
Install UCO protection (499 airplanes)	Between 38 and 67 work-hours X \$85 per hours = Between \$3,230 and \$5,695 ¹	Between \$3,742 and \$4,861 ¹	Between \$6,972 and \$10,556 ¹	Between \$3,479,028 and \$5,267,444 ¹
Revise airplane flight manual (499 airplanes)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$42,415
Revise maintenance program (499 airplanes)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$42,415

¹Depending on group

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

2016-18-16 The Boeing Company: Amendment 39-18647; Docket No. FAA-2011-1068; Directorate Identifier 2010-NM-189-AD.

(a) Effective Date

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

Certain requirements of this AD terminate certain requirements of AD 2001-08-24, Amendment 39-12201 (66 FR 20733, April 25, 2001) (“AD 2001-08-24”).

(c) Applicability

This AD affects all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes; certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 28, Fuel.

(e) Unsafe Condition

This AD was prompted by fuel system reviews conducted by the manufacturer. We are issuing this AD to prevent operation of the center and auxiliary tank fuel boost pumps with continuous low pressure, which could lead to friction sparks or overheating in the fuel pump inlet that could create a potential ignition source inside the center and auxiliary fuel tanks. These conditions, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Installation of Automatic Shutoff System for the Center and Auxiliary Tank Fuel Boost Pumps

Within 36 months after the effective date of this AD, do the applicable actions specified in paragraph (g)(1), (g)(2), or (g)(3) of this AD. If a placard has been previously installed on an airplane, in accordance with the requirements of paragraph (i) of this AD,

the placard may be removed from the flight deck of only that airplane after the automatic shutoff system has been installed, as specified in paragraph (g)(1), (g)(2), or (g)(3) of this AD, as applicable.

(1) For Model 737-100, -200, and -200C series airplanes in Groups 2 through 19, as identified in Boeing Alert Service Bulletin 737-28A1228, Revision 1, dated June 28, 2012: Install the automatic shutoff system for the center and auxiliary fuel tank boost pumps, as applicable, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1228, Revision 1, dated June 28, 2012. For airplanes that do not have airstairs, accomplishment of the actions specified in Boeing Alert Service Bulletin 737-28A1228, dated August 2, 2010, is acceptable for compliance with the requirements of this paragraph, provided markers are installed on the J2802 Box for “POS 1” and “POS 2” within 90 days after the effective date of this AD, in accordance with Boeing Alert Service Bulletin 737-28A1228, Revision 1, dated June 28, 2012.

(2) For Model 737-100, -200, and -200C series airplanes in Group 1, as identified in Boeing Alert Service Bulletin 737-28A1228, Revision 1, dated June 28, 2012: Install the automatic shutoff system for the center and auxiliary fuel tank boost pumps, as applicable, using a method approved in accordance with the procedures specified in paragraph (r) of this AD.

(3) For Model 737-300, -400, and -500 series airplanes in Groups 1 through 31, as identified in Boeing Service Bulletin 737-28A1216, Revision 3, dated July 16, 2014: Install the automatic shutoff system for the center and auxiliary fuel tank boost pumps, as applicable, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-28A1216, Revision 3, dated July 16, 2014. For airplanes that do not have airstairs: Accomplishment of the actions specified in Boeing Alert Service Bulletin 737-28A1216, dated July 29, 2010, is acceptable for compliance with the requirements of this paragraph, provided markers are installed on the J2802 Box for “POS 1” and

“POS 2” within 90 days after the effective date of this AD, in accordance with Boeing Alert Service Bulletin 737-28A1216, Revision 1, dated March 26, 2012; or Boeing Service Bulletin 737-28A1216, Revision 2, dated November 12, 2012.

(h) Concurrent Installation of P5-2 Fuel System Module Assembly

Before or concurrently with accomplishment of the actions required by paragraph (g) of this AD, do the actions specified in paragraph (h)(1) or (h)(2) of this AD, as applicable. Accomplishment of the actions specified in Boeing Alert Service Bulletin 737-28A1210, dated August 2, 2010; or Boeing Service Bulletin 737-28A1210, Revision 1, dated May 13, 2011; is acceptable for compliance with the requirements of paragraph (h)(1) of this AD, provided that for any original P5-2 fuel system module P/N 69-37335-129 installed that has been reworked as specified in BAE Systems Service Bulletin 69-37335-28-04, Revision 2, dated February 10, 2010, the (P/N) marking is etched/scribed or labeled as P/N 69-37335-2129, within 90 days after the effective date of this AD.

(1) For airplanes in Group 2, as identified in Boeing Service Bulletin 737-28A1210, Revision 2, dated October 25, 2012: Replace the P5-2 fuel system module assembly with a modified or new P5-2 fuel system module assembly having a new part number, in accordance with Boeing Service Bulletin 737-28A1210, Revision 2, dated October 25, 2012.

Note 1 to paragraph (h)(1) of this AD: Boeing Service Bulletin 737-28A1210, Revision 2, dated October 25, 2012, refers to BAE Systems Service Bulletin 69-37335-28-04 as an additional source of guidance for modifying and updating the existing P5-2 fuel system module assembly part numbers.

(2) For airplanes in Group 1, as identified in Boeing Service Bulletin 737-28A1210, Revision 2, dated October 25, 2012: Replace the P5-2 fuel system module

assembly, as applicable, using a method approved in accordance with the procedures specified in paragraph (r) of this AD.

(i) Concurrent Installation of a Placard for Mixed Fleet Operation

Concurrently with accomplishment of the actions required by paragraph (g) of this AD, install a placard adjacent to the pilot's primary flight display on all airplanes in the operator's fleet not equipped with an automatic shutoff system for the center and auxiliary tank fuel boost pumps, as applicable. The placard must include the statement in figure 1 to paragraph (i) of this AD. Optionally, the placard may include alternative text or be installed in a different location, or an additional placard may be installed, if approved by an appropriate FAA principal operations inspector. Installing an automatic shutoff system on an airplane, in accordance with the requirements of paragraph (g) of this AD, terminates the placard installation required by this paragraph for only that airplane.

Figure 1 to Paragraph (i) of this AD – *Fuel usage restrictions*

AD 2001-08-24 fuel usage restrictions required.

(j) Airplane Flight Manual (AFM) Revisions for Airplanes without Boeing Auxiliary Fuel Tanks

For airplanes without Boeing auxiliary fuel tanks: Concurrently with accomplishment of the actions required by paragraph (g) of this AD, do the actions specified in paragraphs (j)(1) and (j)(2) of this AD.

(1) Revise Section 1 of the Limitations section of the applicable Boeing 737 AFM to include the statement in figure 2 to paragraph (j)(1) of this AD. This may be done by inserting a copy of this AD into the AFM. When a statement identical to that in figure 2 to paragraph (j)(1) of this AD has been included in the general revisions of the applicable Boeing 737 AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 2 to Paragraph (j)(1) of this AD – *Prohibition of dry running – center fuel tank fuel pumps*

CENTER TANK FUEL PUMPS

Intentional dry running of a center tank fuel pump (low pressure light illuminated) is prohibited.

(2) Revise Section 3 of the Normal Procedures section of the applicable Boeing 737 AFM to include the text specified in figure 3 to paragraph (j)(2) of this AD. This may be done by inserting a copy of this AD into the AFM. Alternative statements that meet the intent of the following requirements may be used if approved by an appropriate FAA principal operations inspector.

Figure 3 to Paragraph (j)(2) of this AD – *Normal fuel usage*

NORMAL FUEL USAGE

Center tank fuel pumps must not be “ON” unless personnel are available in the flight deck to monitor low pressure lights.

For ground operation, center tank fuel pump switches must not be positioned “ON” unless the center tank fuel quantity exceeds 1,000 pounds (453 kilograms), except when defueling or transferring fuel. Upon positioning the center tank fuel pump switches “ON,” verify momentary illumination of each center tank fuel pump low pressure light.

For ground and flight operations, the corresponding center tank fuel pump switch must be positioned “OFF” when a center tank fuel pump low pressure light illuminates [1]. Both center tank fuel pump switches must be positioned “OFF” when the first center tank fuel pump low pressure light illuminates if the center tank is empty.

[1] When established in a level flight attitude, both center tank pump switches should be positioned “ON” again if the center tank contains usable fuel.

DEFUELING AND FUEL TRANSFER

When transferring fuel or defueling center or main tanks, the fuel pump low pressure lights must be monitored and the fuel pumps positioned to “OFF” at the first indication of the fuel pump low pressure [1].

Defueling the main tanks with passengers on board is prohibited if the main tank fuel pumps are powered [2].

Defueling the center tank with passengers on board is prohibited if the center tank fuel pumps are powered and the auto-shutoff system is inhibited [2].

[1] Prior to transferring fuel or defueling, conduct a lamp test of the respective fuel pump low pressure lights.

[2] Fuel may be transferred from tank to tank or the aircraft may be defueled with passengers on board, provided fuel quantity in the tank from which fuel is being taken is maintained at or above 2,000 pounds (907 kilograms).

(k) AFM Revisions for Airplanes with Boeing Auxiliary Fuel Tanks

For airplanes with Boeing auxiliary fuel tanks: Concurrently with accomplishment of the actions required by paragraph (g) of this AD, do the actions specified in paragraphs (k)(1) and (k)(2) of this AD.

(1) Revise Section 1 of the Limitations section of the applicable Boeing 737 AFM to include the text specified in figure 4 to paragraph (k)(1) of this AD. This may be done by inserting a copy of this AD into the AFM. When a statement identical to that in figure 4 to paragraph (k)(1) of this AD has been included in the general revisions of the applicable Boeing 737 AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 4 to Paragraph (k)(1) of this AD – *Prohibition of dry running – center/auxiliary tank fuel pump*

CENTER WING (AND BOEING AUXILIARY) TANK FUEL PUMPS

Intentional dry running of a center wing or auxiliary tank fuel pump (low pressure light illuminated) is prohibited.

(2) Revise Section 3 of the Normal Procedures section of the applicable Boeing 737 AFM to include the text specified in figure 5 to paragraph (k)(2) of this AD. This may be done by inserting a copy of this AD into the AFM. Alternative statements that meet the intent of the following requirements may be used if approved by an appropriate FAA principal operations inspector.

Figure 5 to Paragraph (k)(2) of this AD – *Operation of center/auxiliary tank fuel pumps*

CENTER WING (AND BOEING AUXILIARY) TANK FUEL PUMPS

Center wing or auxiliary tank fuel pumps must not be “ON” unless personnel are available in the flight deck to monitor low pressure lights.

For ground operation, center wing (or auxiliary) tank fuel pump switches must not be positioned “ON” unless the center wing (or auxiliary) tank fuel quantity exceeds 1,000 pounds (453 kilograms), except when defueling or transferring fuel. Upon positioning the center wing (or auxiliary) tank fuel pump switches “ON,” verify momentary illumination of each center wing (or auxiliary) tank fuel pump low pressure light.

For ground and flight operations, the corresponding center wing (or auxiliary) tank fuel pump switch must be positioned “OFF” when a center wing (or auxiliary) tank fuel pump low pressure light illuminates [1]. Both center wing (or auxiliary) tank fuel pump switches must be positioned “OFF” when the first center wing (or auxiliary) tank fuel pump low pressure light illuminates if the center wing (or auxiliary) tank is empty.

[1] When established in a level flight attitude, both center wing (or auxiliary) tank pump switches should be positioned “ON” again if the center wing (or auxiliary) tank contains usable fuel.

DEFUELING AND FUEL TRANSFER

When transferring fuel or defueling center wing, auxiliary or main tanks, the fuel pump low pressure lights must be monitored and the fuel pumps positioned to “OFF” at the first indication of the fuel pump low pressure [1].

Defueling the main tanks with passengers on board is prohibited if the main tank fuel pumps are powered [2].

Defueling the center wing (or auxiliary) tank with passengers on board is prohibited if the center wing (or auxiliary) tank fuel pumps are powered and the auto-shutoff system is inhibited [2].

[1] Prior to transferring fuel or defueling, conduct a lamp test of the respective fuel pump low pressure lights.

[2] Fuel may be transferred from tank to tank or the aircraft may be defueled with passengers on board, provided fuel quantity in the tank from which fuel is being taken is maintained at or above 2,000 pounds (907 kilograms).

(l) Airworthiness Limitations (AWLs) Revision for Automatic Shutoff System

Concurrently with accomplishment of the actions required by paragraph (g) of this AD, or within 30 days after the effective date of this AD, whichever occurs later:

Revise the maintenance program by incorporating the AWLs specified in paragraphs (l)(1), (l)(2), (l)(3), and (l)(4) of this AD, as applicable. The initial compliance time for the actions specified in the applicable AWLs is within 1 year after accomplishment of the installation required by paragraph (g) of this AD, or within 1 year after the effective date of this AD, whichever occurs later.

(1) For Model 737-100, -200, and -200C series airplanes without Boeing auxiliary fuel tanks installed: Incorporate AWL No. 28-AWL-21 of Section C., Airworthiness Limitations - Systems, of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.

(2) For Model 737-100, -200, and -200C series airplanes with Boeing auxiliary fuel tanks installed: Incorporate AWL No. 28-AWL-21 and AWL No. 28-AWL-22 of Section C., Airworthiness Limitations - Systems,” of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.

(3) For Model 737-300, -400, and -500 series airplanes without Boeing auxiliary fuel tanks installed: Incorporate AWL No. 28-AWL-20 of Section C., Airworthiness Limitations - Systems, of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.

(4) For Model 737-300, -400, and -500 series airplanes with Boeing auxiliary fuel tanks installed: Incorporate AWL No. 28-AWL-20 and AWL No. 28-AWL-21 of Section C., Airworthiness Limitations - Systems, of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.

(m) Installation of Un-commanded ON (UCO) Protection System

Within 60 months after the effective date of this AD, do the actions required by paragraph (m)(1) or (m)(2) of this AD, as applicable.

(1) For airplanes in Groups 2 through 13, as identified in Boeing Service Bulletin 737-28A1227, Revision 2, dated September 23, 2014: Install the UCO protection system for the center and auxiliary tank fuel boost pumps, as applicable, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-28A1227, Revision 2, dated September 23, 2014. For airplanes with enlarged J2802 box assembly relay cutouts to fit the body of relays R3334, R3336, R3338, or R3340, with BACS12HN08-10 screws for the installation of the relays as specified in Boeing Service Bulletin Information Notice 737-28A1227 IN 05: Accomplishment of the actions specified in Boeing Alert Service Bulletin 737-28A1227, dated August 2, 2010; or Revision 1, dated July 18, 2011; is acceptable for compliance with the requirements of this paragraph, provided markers are installed that identify the function of the switches installed on the J2802 box within 90 days after the effective date of this AD, in accordance with figure 1 or figure 5, as applicable, of Boeing Service Bulletin 737-28A1227, Revision 2, dated September 23, 2014.

(2) For airplanes in Group 1, as identified in Boeing Service Bulletin 737-28A1227, Revision 2, dated September 23, 2014: Install the UCO protection system for the center and auxiliary tank fuel boost pumps, as applicable, using a method approved in accordance with the procedures specified in paragraph (r) of this AD.

(n) AWLs Revision for UCO Protection System

Concurrently with accomplishment of the actions required by paragraph (m) of this AD, or within 30 days after the effective date of this AD, whichever occurs later: Revise the maintenance program by incorporating the AWLs specified in paragraphs (n)(1), (n)(2), (n)(3), and (n)(4) of this AD, as applicable. The initial compliance time for

the actions specified in applicable AWLs is within 1 year after accomplishment of the installation required by paragraph (m) of this AD, or within 1 year after the effective date of this AD, whichever occurs later.

(1) For Model 737-100, -200, and -200C series airplanes without Boeing auxiliary fuel tanks: Incorporate AWL No. 28-AWL-24 of Section C., Airworthiness Limitations - Systems, of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.

(2) For Model 737-100, -200, and -200C series airplanes with Boeing auxiliary fuel tanks: Incorporate AWL No. 28-AWL-24 and AWL No. 28-AWL-25 of Section C., Airworthiness Limitations, of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.

(3) For Model 737-300, -400, and -500 series airplanes without Boeing auxiliary fuel tanks: Incorporate AWL No. 28-AWL-23 of Section C., Airworthiness Limitations - Systems, of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.

(4) For Model 737-300, -400, and -500 series airplanes with Boeing auxiliary fuel tanks: Incorporate AWL No. 28-AWL-23 and AWL No. 28-AWL-24 of Section C, "Fuel Systems Airworthiness Limitations," of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.

(o) No Alternative Inspections or Inspection Intervals

After accomplishment of the applicable actions specified in paragraphs (l) and (n) of this AD, no alternative inspections or inspection intervals may be used unless the

inspections or inspection intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (r) of this AD.

(p) Method of Compliance for Paragraph (l) of this AD

Incorporating AWL No. 28-AWL-21 and AWL No. 28-AWL-22 for Model 737-100, -200, and -200C series airplanes; and AWL No. 28-AWL-20 and AWL No. 28-AWL-21 for Model 737-300, -400, and -500 series airplanes; in accordance with paragraphs (g)(1) and (g)(2) of AD 2008-10-09 R1, Amendment 39-16148 (74 FR 69264, December 31, 2009); is acceptable for compliance with the corresponding AWL incorporation required by paragraph (l) of this AD.

(q) Method of Compliance for Paragraph (a) of AD 2001-08-24

Accomplishment of the actions required by paragraphs (g), (h), (i), and (l) of this AD, and paragraph (j) or (k) of this AD as applicable, is an acceptable method of compliance with the requirements of paragraph (a) of AD 2001-08-24.

(r) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (s)(1) of this AD. Information may be emailed to 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing

Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(s) Related Information

(1) For more information about this AD, contact Serj Harutunian, Aerospace Engineer, Propulsion Branch, ANM-140L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5254; fax: 562-627-5210; email: Serj.Harutunian@faa.gov.

(2) For BAE Systems service information identified in this AD that is not incorporated by reference, contact BAE Systems, Attention: Commercial Product Support, 600 Main Street, Room S18C, Johnson City, NY 13790-1806; phone: 607-770-3084; fax: 607-770-3015; email: CS-Customer.Service@baesystems.com; Internet: <http://www.baesystems-ps.com/customersupport>. It is also available at the address specified in paragraph (t)(5) of this AD. Boeing service information identified in this AD that is not incorporated by reference is also available at the addresses specified in paragraphs (t)(4) and (t)(5) of this AD.

(t) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(i) Boeing Alert Service Bulletin 737-28A1210, dated August 2, 2010.

- (ii) Boeing Alert Service Bulletin 737-28A1216, dated July 29, 2010.
 - (iii) Boeing Alert Service Bulletin 737-28A1216, Revision 1, dated March 26, 2012.
 - (iv) Boeing Alert Service Bulletin 737-28A1227, dated August 2, 2010.
 - (v) Boeing Alert Service Bulletin 737-28A1227, Revision 1, dated July 18, 2011.
 - (vi) Boeing Alert Service Bulletin 737-28A1228, dated August 2, 2010.
 - (vii) Boeing Alert Service Bulletin 737-28A1228, Revision 1, dated June 28, 2012.
 - (viii) Boeing Service Bulletin 737-28A1210, Revision 1, dated May 13, 2011.
 - (ix) Boeing Service Bulletin 737-28A1210, Revision 2, dated October 25, 2012.
 - (x) Boeing Service Bulletin 737-28A1216, Revision 2, dated November 12, 2012.
 - (xi) Boeing Service Bulletin 737-28A1216, Revision 3, dated July 16, 2014.
 - (xii) Boeing Service Bulletin 737-28A1227, Revision 2, dated September 23, 2014.
 - (xiii) Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision June 2014.
- (4) For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone: 206-544-5000, extension 1; fax: 206-766-5680; Internet <https://www.myboeingfleet.com>.
- (5) You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.
- (6) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the

availability of this material at NARA, call 202-741-6030, or go to:

<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on August 25, 2016.

John P. Piccola, Jr.,

Acting Manager,

Transport Airplane Directorate,

Aircraft Certification Service.

[FR Doc. 2016-21602 Filed: 9/23/2016 8:45 am; Publication Date: 9/26/2016]